

ABSTRACT

A wavelength division multiplexing optical transmission apparatus for stabilizing wavelengths by feeding back the output of detection of wavelength fluctuations to the light source is provided with an optical filtering means for branching part of wavelength division multiplexed transmission lights from a plurality of optical transmission means each comprising a semiconductor laser for oscillating signal lights having different wavelengths and modulated with different frequencies and a temperature controller for controlling the temperature of the semiconductor laser, having a plurality of pass bands and transmitting the branched component of the wavelength division multiplexed transmission lights; a means for collectively receiving and photoelectrically converting the lights transmitted by the optical filtering means; and band pass filtering means having as their respective pass bands the photoelectrically converted electrical signals, and each supplying the output of the pass band to the temperature controller for controlling the temperature of the semiconductor laser modulated with the matching frequency. Each of the temperature controllers causes the temperature of the matching one of the semiconductor lasers to keep the outputs of the band pass filtering means at a constant level, and thereby stabilizes each of the wavelengths the wavelength division multiplexed transmission lights contain.